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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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George Bellesis

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09/09/2004

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EXAMINER

OLSON, JASON C

ART UNIT

PAPER NUMBER

2651

DATE MAILED: 09/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/933,920	Applicant(s) BELLESIS ET AL.	
	Examiner Jason C Olson	Art Unit 2651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-28,30 and 31 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-20,25 and 27 is/are allowed.
- 6) ☒ Claim(s) 1,3,6-8,21,23,24,26,28,30 and 31 is/are rejected.
- 7) ☒ Claim(s) 4,5,9-14 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 21, 23, and 30-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Leonhardt et al. (US 6,084,740).

Regarding claim 21, Leonhardt et al. teaches a method for positioning a read/write head (or recording channel) relative to an optical servo system (see col. 4, ln. 11-23) by determining the position (or first position) of the read/write head (see col. 4, ln. 25-40), processing a tape to determine position error (or lateral offset) of the read/write head (see col. 4, ln. 41-47 and col. 4,

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ln. 64-col. 5, ln. 5), the tape contains a plurality of parallel alignment servo tracks (or voids) (see col. 4, ln. 41-44); and positioning the read/write head (to the second position) relative to the optical servo system to correct position error (see col. 5, ln. 5-40), moving the head across the tracks in motion perpendicular to a motion of the alignment tape (see col. 5, ln. 1-10 and figure 1, items 605 and 611) where multiple beams of light are directed onto the tape and read/write head to determine optical signals (see col. 4, ln. 47-64), and a timing difference is determined between multiple optical signals (see col. 5, ln. 50-col. 6, ln. 20 and as depicted in figure 2 by Leonhardt et al. in items 701-705).

Regarding claim 23, using a correlation algorithm to compare the image (or optical signal) to a reference image (see col. 6, ln. 34-45 of Leonhardt et al.)

Regarding claims 30-31: claims 30-31 have limitations similar to those treated in the above rejection(s), and are met by the references as discussed above. Claims 30-31 however also recite further limitations as taught by Leonhardt et al: determining and storing a lateral offset (or machine calibration, see col. 6, ln. 45-50) during tape travel to align the data track with the read/write head (see col. 6, ln. 25-49 of Leonhardt et al.).

Claim 28 is rejected under 35 U.S.C. 102(e) as being anticipated by Lubratt (US 6,433,951), who is cited in the previous office action as being prior art not relied upon.

Regarding claim 28, Lubratt teaches a tape comprising: an elongated continuous web of flexible plastic substrate material having two edges and defining a front major surface and a back major surface (see figure 1 and col. 3, ln. 35-43); a magnetic storage medium formed on the front major surface (see col. 4, ln. 30-44); an inert medium formed on the back major surface (see col.

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4, ln. 16-30); and a track of alignment voids for indicating actual lateral displacement of the selected recording channel relative to the optical servo system (see figure 1, items 22a and 22b, col. 3, ln. 61-col. 4, ln. 5); wherein the track of alignment voids is formed by ablation by a pulsating laser beam of sufficient power to penetrate the back major surface through to the front major surface leaving visible the flexible major surface leaving visible the flexible plastic substrate of the alignment tape (see col. 5, ln. 55-col. 6, ln. 5 and figure 3, items 24, 20, and 12).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 6-8, 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leonhardt et al. and Lubratt.

Regarding claim 1, Leonhardt et al. teaches a method for positioning a read/write head (or recording channel) relative to an optical servo system (see col. 4, ln. 11-23) by determining the position (or first position) of the read/write head (see col. 4, ln. 25-40), processing a tape to determine position error (or lateral offset) of the read/write head (see col. 4, ln. 41-47 and col. 4, ln. 64-col. 5, ln. 5), the tape contains a plurality of parallel alignment servo tracks (or voids) (see col. 4, ln. 41-44); and positioning the read/write head (to the second position) relative to the optical servo system to correct position error (see col. 5, ln. 5-40). Leonhardt et al. fails to disclose writing a track of data to the tape over the alignment voids, however, Lubratt is relied

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upon to teach a tape where tracks of are written over voids in order to facilitate alignment (see col. 4, ln. 31-44, and figure 1, items 10, 22a, 22b, a, and b). It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve upon the tape of Leonhardt et al. by applying the teaching of overwriting voids with a magnetic signal as taught by Lubratt for the purpose of servo positioning by a combination of magnetic and optical servo patterns and reformatting magnetic storage data tapes without specialized equipment.

Regarding claim 3, the combination of Leonhardt et al. and Lubratt disclose all the limitations of claim 1 above. Leonhardt et al. further teaches imaging the tape to determine the alignment of the read/write head with the data tracks and positioning the read/write head to alleviate the position error of the data head (see col. 4, ln. 55-col. 5, ln. 10).

Regarding claim 6, the combination of Leonhardt et al. and Lubratt disclose the limitations of the claims above. Leonhardt et al. further teaches the head alignment is determined (see col. 4, ln. 60-67; the scale at which the offset is measured is not inventive because it produces no new or unexpected results and is considered designer's choice by the Office).

Regarding claims 7-8, the combination of Leonhardt et al. and Lubratt disclose the limitations of claim 1 above. Leonhardt et al. further teaches the read/write head is positioned in the direction needed to correct for position error (see col. 5, ln. 1-11; The relationship between the value of the offset (either positive or negative) and the direction in which the second position is related to the first position (either upward or downward) is not inventive because it does not produce an unexpected outcome and is considered designer's choice by the Office).

Regarding claim 24, the combination of Leonhardt et al. and Lubratt disclose the limitations of claim 1 above. Leonhardt et al. further teaches the tape has formed on the second

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side thereof, a plurality of parallel alignment servo tracks that are used to position the read/write data head (see col. 4, ln. 11-23 and ln. 41-45)

Regarding claim 26, the combination of Leonhardt et al. and Lubratt disclose the limitations of the claims above. Leonhardt et al. further teaches an optical servo track created by a laser (see col. 7, ln. 16-25).

Allowable Subject Matter

Claims 15-20, 25, and 27 are allowed. Regarding claim 15, the prior art fails to teach alone or in combination a method for positioning a selected recording channel on a recording head relative to an optical servo system in a read/write assembly comprising: writing and reading a magnetic signal to an alignment tape by the selected recording channel at a higher frequency than the frequency of alignment voids moving past the selected recording channel to determine an amplitude demodulated magnetic signal; directing a beam of light by the optical servo system to the alignment tape to determine an optical signal; and determining a timing difference between the envelope of the demodulated magnetic signal and the envelope of the optical signal.

Regarding claim 25, the prior art taken alone or in combination fails to teach suspending an alignment tape in a coupon; positioning the alignment tape with the coupon over a recording channel pair to position a line from one element of a channel pair to another; and positioning the optical servo system such that one generated optical spot is centered on a middle one of the longitudinal tracks and other generated optical spots are offset by a desired amount.

Claims 4, 5, 9-14 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the

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base claim and any intervening claims. Claims 4 and 5 teach imaging using a Magnetic Force microscope and using Ferro fluid. Claims 9-14 teach determining an average lateral distance between several alignment voids and the tracks of data and monitoring a bit-error-ratio (BER) and correlating the BER to the lateral offset. Claim 22 teaches rotating the optics to bring the timing difference divided by the velocity to a desired value.

Response to Arguments

Applicant's arguments with respect to claims 1, 7-8, 24, and 26 have been considered but are moot in view of the new ground(s) of rejection. The Applicant has amended claim 1 to include, "writing a track of alignment tape over the alignment voids." The examiner has cited Lubratt (6433951) to teach the newly included limitation (see col. 4, ln. 31-44, and figure 1, items 10, 22a, 22b, a, and b) so that claim 1 will stand rejected as being unpatentable over Leonhardt et al. and Lubratt with the motivation to combine for the purpose of servo positioning by a combination of magnetic and optical servo patterns and reformatting magnetic storage data tapes without specialized equipment. Claims 7-8, 24, and 26 stand rejected under Leonhardt et al. as in the previous office action.

Applicant's arguments with respect to claims 21 and 23 have been fully considered but they are not persuasive. The Applicant argues that Leonhardt et al. fails to teach, "moving the recording head across the tracks in a motion perpendicular to a motion of the alignment tape." The Examiner respectfully disagrees because Leonhardt et al. discloses, "operation of actuator to move read/write head in the direction needed to align the movable read/write head with the data tracks." (see col. 5, ln. 5-10). It is understood by the Examiner that the read/write will be moved

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in any direction necessary, including perpendicular, relative to the tape in order to facilitate alignment. Claims 21 and 23 stand rejected.

Applicant's arguments with respect to claims 28-29 have been considered but are moot in view of the new ground(s) of rejection. The Examiner has relied upon the teachings of Lubratt to fully disclose the invention of claims 28-29.

Applicant's arguments with respect to claims 30-31 have been fully considered but they are not persuasive. The Applicant argues that Leonhardt et al. fails to teach "storing the lateral offset," because the stored values are "reference signals" that are "typical signals experienced by many such tape drives," The Examiner would like to clarify the cited reference with respect to the teaching of claims 30-31. Leonhardt et al. discloses "actual signals obtained...during initial machine calibration or periodic re-calibration..." (see col. 6, ln. 47-49). It is understood by the Examiner that the signals obtained during a calibration process, pertain to the lateral offset detected during the calibration process and are stored in a non-volatile memory for future use when aligning the head to the tape. Claims 30-31 stand rejected.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason C Olson whose telephone number is 703.305.8325. The examiner can normally be reached on Monday thru Thursday 7:30-5:30; alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (703)308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCO

August 31, 2004


SINH TRAN
PRIMARY EXAMINER